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UNITED STATES DEPARTMENT OF AGRICULTURE

BUREAU OF ENTOMOLOGY AND PLANT QUARANTINE

FOREST INSECT INVESTIGATIONS

Project h-1-22 Date Author

SUBJECT—

TITLE

PINE BEETLE SURVEY OF 1944

in the

OCHOCO NATIONAL FOREST

by

W. J. Buckhorn
Scientific Aid

Forest Insect Laboratory
Portland 5, Oregon
December 7, 1944

INDEX NO.—

U. S. GOVERNMENT PRINTING OFFICE 8—0742

BUREAU OF
Entomology and Plant Quarantine
RECEIVED
DEC 18 944
Forest Insect Laboratory,
BERKELEY, CALIF.

FILE NO. _____
Refer to: Acted by:

Forest Insect Laboratory
445 U. S. Court House
Portland 5, Oregon
December 15, 1944

Regional Forester
U. S. Forest Service
Post Office Building
Portland, Oregon

Dear Sir:

Two copies of Mr. W. J. Buckhorn's report of the 1944 pine beetle survey on the Ochoco National Forest are enclosed, one for your information and one for the Forest Supervisor.

In 1943 losses on the plots were the lowest on record and, although no general reconnaissance has been made for several years, it is believed that the plots reflect general conditions, at least so far as rate of loss is concerned. Losses on the plots increased sharply in 1944, the first time there has been any general increase since 1938. It is, of course, too early to tell whether we arsentering into a new epidemic cycle but, as Buckhorn points out, the signs point in that direction.

The most critical condition on the Ochoco continues to center in the Snow Mountain area. Even at the low point in 1943 infestation there was of an epidemic nature. Perhaps more than any other area of comparable size in the Region, the Snow Mountain area is in need of cutting for the purpose of forestalling impending losses.

Sincerely yours,

F. P. Keen
Entomologist in Charge

By _____
R. L. Furniss
Entomologist

Enclosures

cc: F. C. Craighead
F. P. Keen

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FILE No. _____
Refer to: Noted by:

Forest Insect Laboratory
445 U. S. Court House
Portland 5, Oregon
December 14, 1944

Mr. Stuart Moir, Forester
Western Pine Association
510 Yeon Building
Portland, Oregon

Dear Mr. Moir:

The fourteenth annual pine beetle survey of the Ochoco National Forest was conducted this fall. Mr. W. J. Buckhorn has summarized the results of this survey in a short report, one copy of which is enclosed for your information.

Like most areas in the pine region, the Ochoco showed a very low rate of loss in 1943 and a marked increase in 1944. Past, present, and potential losses on the Snow Mountain area mark it as being in drastic need of measures that will restrict beetle activities. We are of the opinion that selective cuttting with due regard to the removal of "risky trees" on "hazardous areas" would do much to salvage values that otherwise are almost bound to be lost on the Snow Mountain area.

Copies of this report are also being sent to George Schroeder, Edward Hines Lumber Company, Alexander-Yawkey Lumber Company, and Ochoco Timber Company.

Sincerely yours,

F. P. Keen
Entomologist in Charge

By _____
R. L. Furniss
Entomologist

Enclosure

cc: G. Schroeder
F. C. Craighead
F. P. Keen

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FILE No.
Refer to: Noted by:

Forest Insect Laboratory
445 U. S. Court House
Portland 5, Oregon
December 15, 1944

Edward Hines Lumber Company
Attention: Mr. E. T. F. Wohlenberg
Burns, Oregon

Gentlemen:

Enclosed is a brief report in which Mr. W. J. Buckhorn of this office summarizes the pine beetle situation on the Ochoco National Forest, as determined from our annual survey of 1944.

As in the case of the Malheur and other forests of the Blue Mountains, pine losses in 1943 were the lowest on record. In 1944 infestation turned sharply upward. On the Snow Mountain area, the area in which you may be most interested, losses continued at a relatively high level in 1943 when losses elsewhere were generally very low. In 1944 losses on the Snow Mountain area were definitely epidemic and the beetle population showed signs of increasing vigor.

Sincerely yours,

F. P. Keen
Entomologist in Charge

By_____
R. L. Furniss
Entomologist

Enclosure

cc: F. C. Craighead
F. P. Keen

BUREAU OF
Entomology and Plant Quarantine
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Forest Insect Laboratory,
BERKELEY, CALIF.

F.I.L. No. _____
Refer to: Noted by:

Forest Insect Laboratory
445 U. S. Court House
Portland 5, Oregon
December 14, 1944

Alexander-Yawkey Lumber Company
Prineville, Oregon

Gentlemen:

Current pine beetle conditions on the Ochoco National Forest are summarized in the enclosed report by Mr. W. J. Buckhorn of this office. Although the report this year does not contain any detailed estimates by areas, we though you might be interested in the plot records as being indicative of the general trend.

Losses in 1943 were the lowest on record. Based upon what losses were evident when this year's survey was made, it is estimated that total mortality for 1944 will be some 50 percent higher than in 1943.

Sincerely yours,

F. P. Keen
Entomologist in Charge

By _____
R. L. Furniss
Entomologist

Enclosure

cc: F. C. Craighead
F. P. Keen

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Entomology and Plant Quarantine
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DEC 18 1944
Forest Insect Laboratory,
BERKELEY, CALIF.

FILE No. _____
Refer to: Noted by:

Forest Insect Laboratory
445 U. S. Court House
Portland 5, Oregon
December 14, 1944

Ochoco Timber Company
Prineville, Oregon

Gentlemen:

Current pine beetle conditions on the Ochoco National Forest are summarized in the enclosed report by Mr. W. J. Buckhorn of this office. Although the report this year does not contain any detailed estimates by areas, we thought you might be interested in the plot records as being indicative of the general trend.

Losses in 1943 were the lowest on record. Based upon what losses were evident when this year's survey was made, it is estimated that total mortality for 1944 will be some 50 percent higher than in 1943.

Sincerely yours,

F. P. Keen
Entomologist in Charge

By _____
R. L. Furniss
Entomologist

Enclosure

cc: F. C. Craighead
F. P. Keen

U. S. Department of Agriculture
Bureau of Entomology and Plant Quarantine
Forest Insect Investigations

PINE BEETLE SURVEY OF 1944

on the

OCHOCO NATIONAL FOREST

Approved by:

F. P. Keen
Entomologist, in Charge

Submitted by:

W. J. Buckhorn
Scientific Aid

Forest Insect Laboratory
445 U. S. Court House
Portland 5, Oregon
December 7, 1944

PINE BEETLE SURVEY OF 1944
on the
OCHOCO NATIONAL FOREST

The fourteenth annual survey of forest insect conditions in the virgin ponderosa pine stands of the Ochoco National Forest was made during the period October 9 to 21, inclusive. As in the past, the pine beetle survey was a cooperative undertaking by the Forest Service and the Bureau of Entomology and Plant Quarantine. Funds and one crew member, Harald Eriksson of the Ochoco staff, were contributed to the project by the Forest Service which also attended to the details of procuring subsistence supplies for the crew. J. M. Whiteside and W. J. Buckhorn were the Bureau representatives who participated in and were responsible for the conduct of the survey, results of which are herein reported.

Very largely the survey was limited to a 100 percent cruise to determine the amount of insect-caused loss that had developed on the 320-acre check plots since the last survey. General observations were made while traveling from plot to plot, but these were insufficient to provide a reliable basis for area estimates usually made in this series of reports. As the Waterman plot was destroyed by fire, only 14 of the 15 plots cruised in 1943 were covered this season. A summary of plot data for 1943 and 1944 is presented in the accompanying table.

Losses on Plots - 1943.

Infestation continued to decline during 1943, thus marking the fourth successive season that losses had declined to a level lower than any previously recorded. Plot losses, down 28 percent from the losses of 1942, averaged 37 board feet per acre or .35 percent of the stand.

Losses on Plots - 1944.

On the basis of past experience, it is estimated that from 70 to 76 percent of the seasonal loss was recorded at the time of the 1944 survey. If this estimate proves to be correct, total losses during 1944 will be approximately 56 board feet per acre, or .52 percent of the stand. Thus, the anticipated loss is 50 percent higher than in 1943 and is the highest since 1940. Furthermore, this is the first general increase of infestation since 1938.

Characteristics of 1944 Infestation.

Drought conditions during 1944 obviously affected tree growth and are presumed to have had a pronounced effect upon the trend of pine beetle infestation. An indication of the severity of these drought conditions is contained in the Weather Bureau's August report of climatological data for Oregon in which the following statement is made, "The twelve month period ending with this month (August) was unusually dry having had only three-quarters of the normal precipitation. It was the driest in thirteen years and the third driest of record."

Effects of drought showed up on living pines in the form of abnormally short needles, reduced diameter growth, and a general increase of external characteristics indicating risk to beetle attack. This increase of external characteristics indicating risk necessitated examination of many more "suspicious" trees than for several years past. Although no great number of these trees was attacked, it was evident that heavy losses are imminent if adverse climatic conditions continue sufficiently long for the beetle population to again attain a high level.

Increased pine beetle activity was marked not only by the increased number of infested trees, but also by a change in the character of infestation. In 1942 and 1943 most infested trees contained a variety of insect species. In contrast, a majority of the trees infested in 1944 were found to contain heavy broods of western pine beetle unmixed with other species. Past experience has been that such increased aggressiveness on the part of the western pine beetle is a common forerunner of epidemic losses.

Conditions on Snow Mountain Area.

Except for the Double Cabin plot on the Maury Mountain area, plots of the Snow Mountain area sustained the highest losses of any recorded on the Forest in 1943. Although that year marked the all time low of infestation, average losses on the Snow Mountain plots bordered upon light epidemic conditions. In 1944, when the trend was definitely upward, losses on the Snow Mountain plots exceeded all others and were well within the range of light epidemic conditions. Thus, no letup appears in sight for this area which has already sustained excessive beetle-caused losses. Some form of utilization to halt further inroads of the pine beetle now seem in order. An extensive program of sanitation-salvage logging on the more hazardous areas would do much to salvage timber values that otherwise are very likely to be lost. At the same time such a program should provide protection against excessive losses for some time to come, perhaps until it will be possible to undertake harvest cuttings on a large scale.

Ponderosa Pine killed by bark beetles on virgin check plots
Ochoco National Forest and adjacent private lands

Area and Plot	Plot Description					1943 Loss					1944 Loss					
				Pine Timber Acres	Pine Volume B. M.	No. trees	BM Volume B.M.	BM Per Acre	% of Stand	Ratio to 1942	Trees Actually Marked	Est. of probable total for Season No. Trees	Volume B.M.	BM per Acre	% of Stand	Ratio to 1943
Mitchell																
Spanish Pk.	13S	24E	23 S½	310	4,342,725	14	9,800	32	.23	.94	14	19	16,500	53	.38	1.85
Prineville																
Stevenson	11S	18E	36 E½	320	4,467,350	14	10,040	31	.22	1.14	17	22	15,650	49	.35	1.65
Dry Creek	13S	17E	29 E½	320	2,715,960	15	6,280	20	.23	.35	12	16	11,550	36	.43	1.84
Wildcat	13S	18E	5 W½	320	3,419,660	15	9,190	29	.27	1.15	15	20	10,650	33	.31	1.16
Area Total				960	10,602,970	44	25,510	27	.24	.73	44	58	37,850	39	.36	1.48
Summit Prairie																
Black Mtn.	14S	22E	9 W½	320	3,762,070	15	11,830	37	.31	.55	10	14	17,050	53	.45	1.44
Horse Prairie	15S	21E	29 E½	320	2,977,280	20	11,710	37	.39	2.00	13	18	11,750	37	.39	1.00
Paulina Bu.	14S	23E	32 E½	320	2,544,650	12	8,790	27	.35	.46	7	9	8,290	26	.33	.94
760 Spring	14S	26E	7 S½	320	5,533,980	5	4,040	13	.07	.43	5	7	11,050	35	.20	2.73
Sunflower	16S	26E	33 W½	304	3,163,150	5	5,310	18	.17	.45	5	7	7,790	26	.25	1.47
Area Total				1584	17,981,130	57	41,680	26	.23	.62	40	55	55,930	35	.31	1.34
Maury Mtn.																
Double Cabin	18S	20E	10 N½	320	3,074,690	23	22,260	70	.73	1.53	15	20	21,200	66	.69	.95
Snow Mtn.																
Nicoll Cr.	21S	25E	17 W½	320	3,096,810	29	14,200	44	.46	.54	39	56	31,850	99	1.03	2.24
Soda Spr.	20S	25E	4 W½	285	2,511,355	25	24,900	86	.99	1.09	24	32	34,000	119	1.35	1.36
Bixby Spr.	20S	26E	12 S½	290	2,740,605	24	13,150	45	.48	.78	29	42	24,500	85	.89	1.87
Emigrant Bu.	21S	28E	6 E½	300	2,599,755	14	11,320	38	.44	.30	20	28	23,000	72	.89	2.03
Area Total				1195	10,948,525	92	63,570	53	.58	.66	112	158	113,350	95	1.04	1.79
GRAND TOTAL - 14 PLOTS				4369	46,950,040	230	162,820	37	.35	.72	225	310	245,130	56	.52	1.50